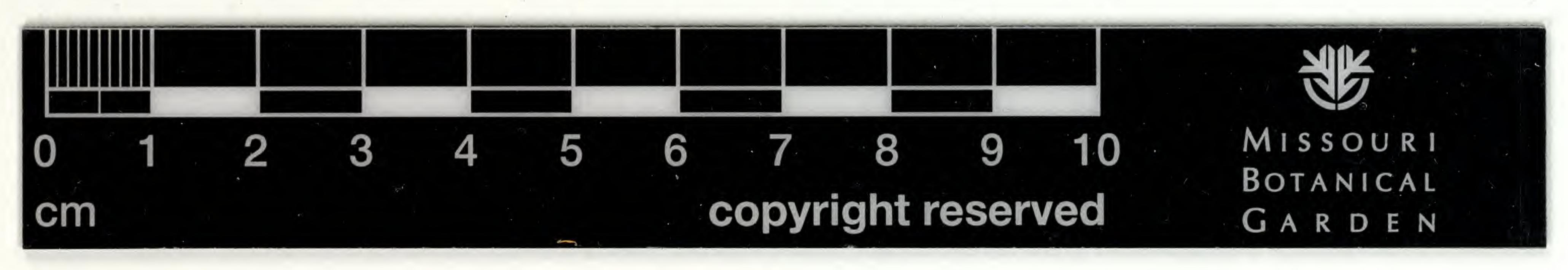


I Walson writer May 13 1876. to trifuma! Do you know whether the common Mond spirit i the real E. autis; pluti e of Mayor? The ongral Bulanser sperian is very superful and looks like the Lexan spening.



MISSOURI BOTANICAL GARDEN GEORGE ENGELMANN PAPERS H. Louis, Mo. May 17th, 1876, Dr. Englemann;
Be kind mough to let me know, at what how on Saturday next, & MISSOURI BOTANICAL

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GARDEN

Ephedra en Loudon Ab. & frul. Esit. W. p. 2062 E. distachya L. p. 2063, fiz. 1973 x 1974

Schk. Hanst. # +, 339

C. monostaty L. p. 2063 fz 1975. 1976. C. altissima Dest p. 2064 fiz 1977. 1978. 1979. E fragilis Derf p. 2065. Ci Ameniana billet. p. 2065 fj. 1980. 8. p. 2597 fiz 2539 Englestri Real M. Harter p. 253 artisana E hundig verville Welf Ann 3. p. 452 Love l'i opristrictation lung Reput p. 151 lapsus penna pro l'American E. Enfuna Joni. ihit. C. American For Stans 6. Mep. 295

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EOECE OR PRESSURE OF VAPOR.

e are entered the numbers which indicate the inches of mercury of a barometer which the force of vapor of the entered the numbers, is due, concein the will sustain. The whole pressure of the atmosphere, as given under the head of "Barometer," is due, conceint of the air and the moisture which it contains. The figures under this table indicate the separate pressure and are obtained from the records of the wet and dry-bulb thermometers by means of a table based on experiment.

RELATIVE HUMIDITY, OR FRACTION OF SATURATION.

y of water in a state of vapor which a given space can contain, depends on the temperature. When a given ich water as it can hold at a given temperature, it is said to be saturated with vapor. If the temperature be on of the vapor will be condensed into water, but the space will still be saturated. If the temperature be nore vapor be admitted, the space will only be partially saturated. The numbers under the head of "Relative fore denote the per-centage of saturation; full saturation being indicated by I, and half saturation by 0.5. These ged from the corresponding forces of vapor by means of a table in the Smithsonian Collection.

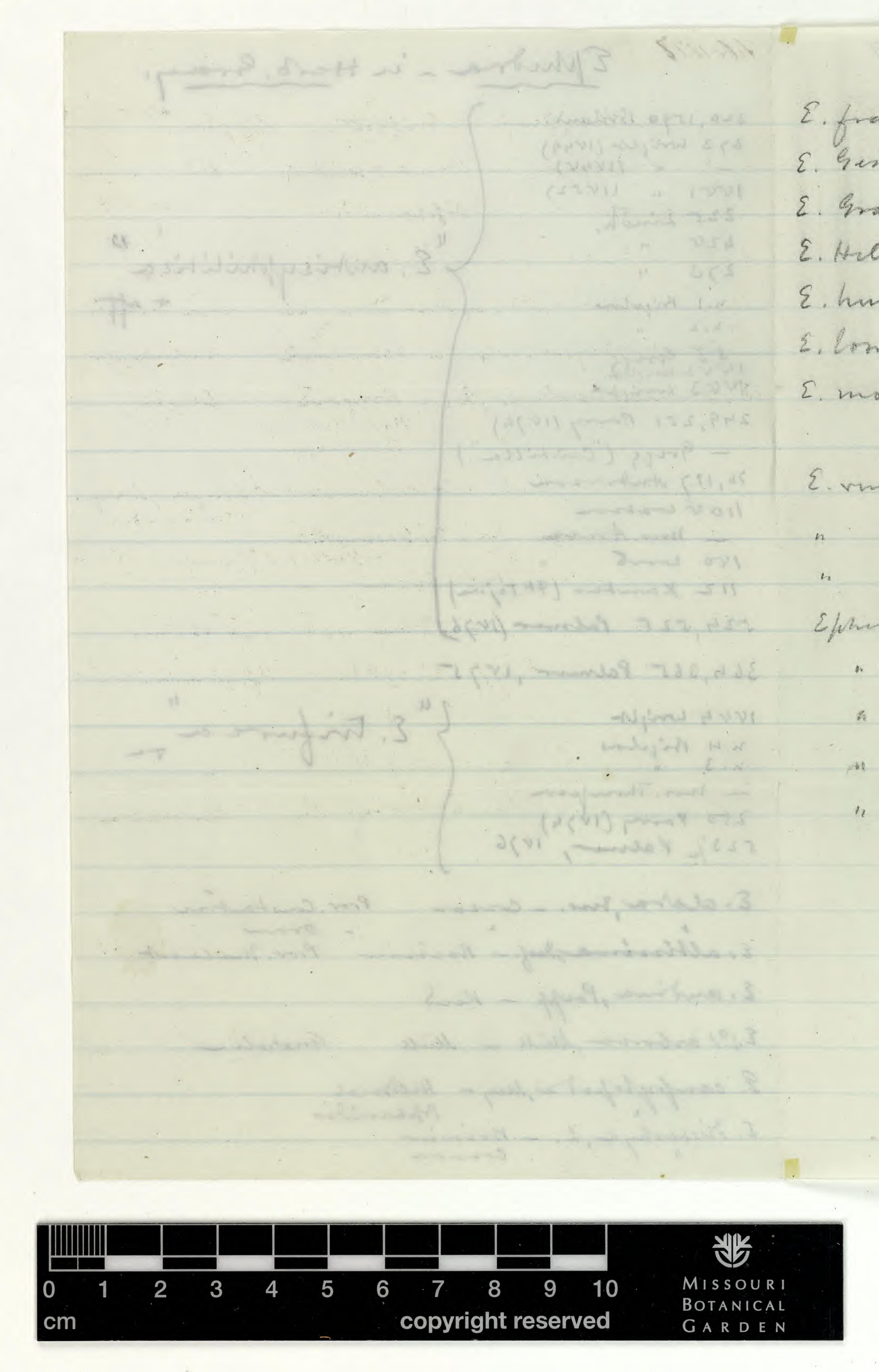
SEE OTHER SIDE.

320,1590 Breland. 673 mi/m (1449) - " (IV4V) 2252 E. antisyphilitica n. 1 Kriptons 1463 Land 11/1 249,251 Parry (1V)4) - Grus ("Cartille") 76,11) Andrew 1104 -i no America 150 1 112 x combine (7th. Tajum) 524,525 Palmon (14) 4) 364,265 Palmer, 1475 1444 Louiston 2. Infure en n.4 Phiphon in here. The many 250 rang. (14)4) 523/2 Palmer, 14)6 E. W. Verr, Lesson Prov. Constantino Ecaltissimmer, Ist. - Borning Promo problements Es arminon, Pripa. - Kins 2.121 arborner, Strikt - Mitt Caratrata 2. comprephens a, my - Heldrich

E. Historya, L. - Proisein

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2. fragilis, Ord. - Sriffitt - Afghan. E. Gerendien - Struck. o Winters. Himsleyen E. Gracia, My. - Orphanists E. Helverica, Mey - Relude E. humilis, hett, - Menten 1126, And, Holiv, E. Cometolipia, Schr. - Schrunk Bratherand E. mondenhym, 2. Monte Party. Little Et E. vilgeris, Rich, ser Sanbonovorskathyr, Ming n vor friedrikensenter – schmidte n vor friedrikensenter, Himst n vor Helschie n n me ditabanant was 112 1 Elether Francis Chamber & Many Comment of Girly H. 4942 All brisanna Lamen n.2. Gruch, Hornburt.

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13471 MISSOURY BOTANICAL GARDEN GEORGE ENGELMANN PAPERS The state of the s Marie MISSOURI BOTANICAL

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Ephedre Ameniance 8. Americana \$465 & Wills Sp. N. 4. 860 (1805) Pom EAndra Poeppig: (AMeyor Giled. p. 78 (1846) Chili E. Tweeding Fird & My - CAMega Gol Jigl to 5- Omenos Agray E. antisyphiles. C. A. May Est p. 101 (1846) it last Coint E Trifunda For in Conory Report (1848) j. 151
S. Wilson in Kry Out. 40 pm. 1.329 notifities
E. Frianda Tel. in Ment fl. Orns. 33-35 +. 107. (Empethne Buth. OY. Harter. 253 (1839) guito) See Pnd. Omij. (1847) p. 253_ Carriere Carif (1855) p 54/ Parlature - De Grod 16, 2 (1868) p. 352 Emory Revonuoissane (1848) p. 15-1 Tomy But Boundy (1859) p 20%. her ilso 1,208 whire of the 3-sp SWalson, Kiny; bothery of 40 Partle. 1871 Ephedn redistr die fre Lexap internetta Tomber THE THE POLICE OF THE STATE

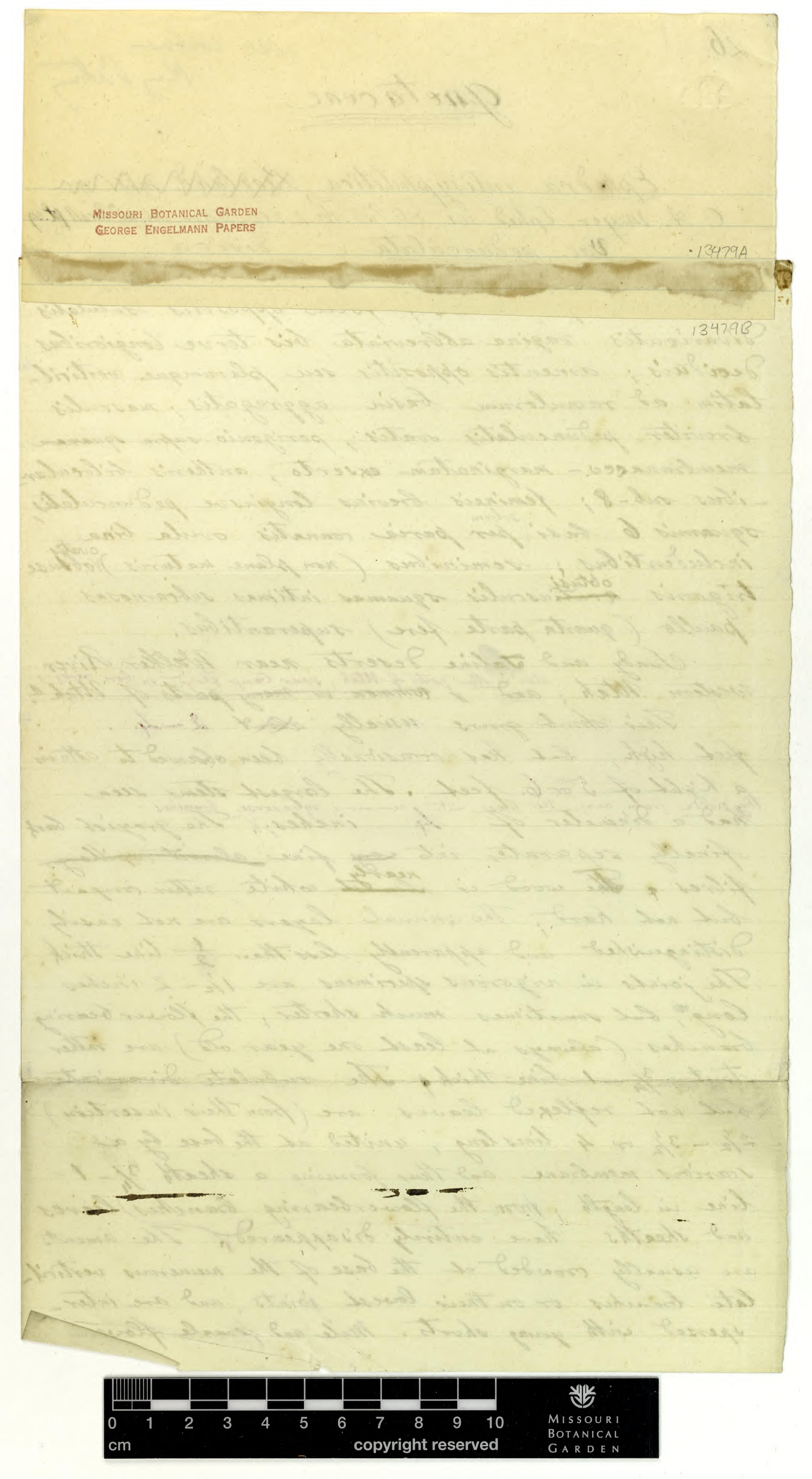
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Fingineer Mffice, U. 417 PINE STREET, Saint Louis, Mo 1 2mg 81 Dr. Es. Engermann, men gratur fied mithe the receipt of your mær of the 27 mer meloning Drawings to be anne to The 300 Seate already formares the Cle Chief of Regimeen Washington, d'mile star à colon of Jein miti, mi ta the drewings refers to were franke to The Brune of Vagineen with The region that your win has might be com ales mitte Den gre to lear con Mu Low about embletude the MISSOURI

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ane Taceae C. A. Meyer, Ephed. 101, DC. Prod. 16. 2. 354. Watson Bot. 40" Parall pt.39 Var. pedunculata: divica fruticosa (squarrosissimas); vamis numerosissimis verticillatis fasciculatis, soliis oppositis subulatis divariantis vagina abbreviata bis terve longionibus deciduis; amentis oppositis seu plerunque vertiril. latim að ramulorum basin aggregatis, masculis breviter pedunculatis svatis, perigonio supra squamam membranaked - marginatam exsento, anthenis bilocular - ibus sub-8; semineis brevius longius ve pedunculatis squamis 6 basi per paria connatis ovula bina ovatis includentibus; seminibus (non plane maturis) Vobbuse trigonis accitius rulis squamas intimas subrarnosas paullo (quarta parte sere) superantibus. Vandy and Taline deserts near Walker River western Mah also is other parts of Utah, near Camp Floyd on bare 10ths 1. Their shows usually about 2. feet high, but has occasionally been observed to attain a hight of 5 for 6. Seet. The largest stems seen they private from near the base int. promoners squarrose branches had a drameter of the inches. I he grayish bark finally separates into wer fine ale trapillary but not hard; the annual layers are not easily distinguished and apparently less than I like thick. The joints in vigorous sperimens are 1/2-2 inches long", but sometimes much shorter, The flower bearing branches (always at least one year old) une rather stout, 34-1 like thick of The subulate divariate but not reflexed leaves are (from their insertion) 2/2 - 3/2 on 4 lines long, united at the base by a sarious membrane and their forming a sheath 3/4-1 like in length; from the flower bearing branches) leaves and sheaths have entirely disappeared. The aments are usually crowded at the base of the numerous verticit late branches or on their lovest joints, and are inter-Spersed with young shoots. Male and pennele flowers MISSOURI BOTANICAL copyright reserved

GARDEN



gre always separated on different stems. The staminate amends, on a naked pedente about I like long, are oval 4-5 likes in length, consist of 6 on 8 or even 10 pains of fleshy membranareously margined scales, each one bearing in its axil (as is the character of the genus) a numbranercous with a transverse slik at the obtuse apex emitting the column of filaments usually bearing I anothers on sometimes less, The 4 lower anothers we sessible, the upper ones are born on very short stipes. They are usually 2-celled, once on twice only have I notices a terminal 4- celled anther. Nollen grains lanceolate even after being moistened. _ The pedundes of the seed bearing aments are usually 2, but sometimes even 3 or 4 lines long; They have at base several pair of very small sudimentary scales and are articulated just above them from very long peducoles I observe another pair of scales about the middle. The amount itself consists always of 3 pains of fleshy scales, or 3 vaginae as they are commonly termed, the appearment being by fan The largest. The seeds I find almost invanisbly in pairs; only once I have seen a single one; that they are flattened on the inside, obtusely keeled on the back, L'an oval outline, and with a rather obtuse perforated point, from which like a style the elongation of the inner seed road protrudes. The seeds (those at my driposal are not fully ripe are rather over 3 lines long and the whole amend is about 4 lines long the seed protouding not more than about /4 its length beyond the innermost, scales C. Anding E. Helochine and a few other species have peduarted amonts, bet in none is the peduarte as long as in This spenies. E antisyphilitica, Berlandier, at least the sperimens described by For Torrey in the Botany of




the Mexican Boundary, pag 207, from above Il Paso (Wright no. 1883) have less rowded branches, leaves in twos or usually in threes, subulate from a broad base spreading or recurved, as long as their common sheath or shorter, /2 to at most I like long; aments closely sessile, not rowded, generally in pairs along the banches rarely in fours; staminate ones subglobose or shortoval, 3-4 lines long, sonsisting of 5 or 6 or rarely y pairs of floriserous scales; perigonial vagina scarrely som protruding above the its sale, anothers 4-5 or 6. The fruit bearing ament a about 4 lines long is composed of 5 or 6 pairs of scales which are membranarcous on the margin, The seed, usually single, is accuminate and protoudes /3 or even /2 its length over the scales. His not quite certain that this is the same as Berland'en plant from Laredo, which is described by C. A. Meyer as having the sessile amends crowded as the base of the numerous fascioulate branches, like our E. pedure ulata. A third western speries has been doublingly indicated by Front ("from the Del Norte and the Gila") Torrey in Emony's Report p. 152 under the name of E. trifurra, Torrey (see also Torrey in Stansh. Step. p. 395). D'aligenus has collected the same from Valverde, south of Santa Le, New Mexico, in the year 1846, but also without flower on fruit. It is a stouter plant, with shriter growth erect vertirillate branches, joints about 1/2 inches long leaves always in threes, subulate, very sharply pointed, strictly evert, 2 lines long, shorter than The elongated sheath (2-3 likes long) or of the same

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length, somewhat persistent, Wright's mo 1884

described by Torrey in the Mex. Sound, Solary p. 208 is the same plant, The aments are sessile in pairs

from the country above il Paso, which has been



along the branches or in clusters at their base. The male amends (about 2½ likes long) are small and globose of shorter than the persistent but larerate Theaths and leaves; The female amends have been described by Torrey, Their stiped, membanareous shiring scales are very curious, but whether their shape is owing to a monstrosity, as suggested, must remain doubtful, as the owner seems to be perfect. Several other species of Ephedra (such as E. alata E. Comatolepis) have also alate scales. J. Legetmann,

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Effedn St. Por 16.2. p. 253 Jembogen 7. Ephetra vulgaris Rich. anthui sel 8, controller stipitatio, amentes fem. Coffenia involuenis immarginatio bifilis, supremo pirtilla forda sabaequente. Vanishis! 8 E. fragilis Dest vaginis 3 mon 4 Detetis [fol. tornis 1. questornis] anthis 4-15/-6) sessilis 9 E. allissima Desf sonders, vagin 2-4 dentalis; ament of plengue pandlate morany auther 2 (-3-4); and 9 persolled deflexis o. petalis 1(-2) flori , inoole 3 immorgination, inferioritos traverto-comarginato summo aprire belobo pistet sibregate
10. 8. Alte Mey. fol 2-4 author 3-5 reprétet; ament q 1 (-2) flor. involver. 2-3 infin. emaginto-biles, summo bilobo nurulis subbrestre, omnet scaniosa marginatis ciliatis futurallus 11. E. monosperme Jude and g oppositio, anthe 6-8 sessil, velocute substipil ameg oppor bris pedemelt 1 fl. involver 1-2 immagniter bifiti, summer postille sufente, fruiten indicate. - humilis, repens. 12 8. Nebrodasis Tin and & subglobs, author 4-8 Jestilibes rentrale substipit. stipite comme involvede vix suponte, am q solitar oppor. I flore, i avolen 2-3 mingineter bifivis, sepreme postille subbrevire. 1- 1/2 pedli 13. 8. provera Fish & May. ament & pan sessil opposit, another 5-8 sessil rel ecutre vix stipit, shipit comme involveelle non s. vix excedente i am q oppose pedementeter suepe verumi, 1-flor involver 2-3 submingster bifit, Jummo pirtillo aveto subdimidio brevione - munila avutati. 4-8 all 14 8. Comestolepis Schronk - voginis 2-3 fistis - am q ni aprice appropri 2-flor, involver sab-4 late membranaces-magneti subbijatitis dumno pistelle ovoider subrequente 15. E. alata Decais. _ amount o conquesti, anthen 2-8 otipitalet. am q 2 - fleri involucio; plunitus profunde 2 - partiti, laviais late mansbranarco merginalis delicaletos postilla arminista carinta aequilitos What to look for in Egsheds. Leaves and their sheether very variable - growth also variable Exertion of involver over scale exertion of filamentous Chum - anthony
sessile or Tipitale, the form of ament of sessile pedente crowded

Aumber of vaginae (pairs of leaves), Their proportion, counter more to or less of vided - fleshy or membranarious or margined as winged Fruit fleshy or arid exsert or indered

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GARDEN

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MISSOURI BOTANICAL GARDEN GEORGE ENGELMANN PAPERS Carge size, 10-17 mm: in the longer d'ameter and 2-3 mm. en thickness; But other fruits from the same regions have seeds only I- 8 um, long and 1.8-2 mm thirty. Var. S, it the southern form Mexican of this species to which Is and is principally distringuished by its smaller flowers, 2-3 juches wide, with ovate or lance-ovate segment, 1/4 - 1/4 inches long and often more than helf as write. by their short style and the somewhat thinner, less rough leaves, with thinner often red brown fires, & the panicles is sometimes pubercent , The careful Dygregg notes, that it his statement that it is almost inored ble and ind supported otherwise, that feel with leaves 1-3 feet long, seeds waid to be actively purgative". It's Their ber sout from Parras leaves and fruit of this species which is an acrount of which together with a cut is found in Battlett's Versonal Narrative I, 491: a plain covered with Yurras foresents a beautiful appearance when in flower in pyramital spikes sevenel feet in Kength - The trees 25-30 feet high and 2-3 feet in drameter, with 10 or a dyen branches -; He mentions that the fibres of the leaved are used for cordinge, The brunks for palings on they are split into stats for the covering of huits, the tender top of the stem is roasted and eater under the name of quiote, and edible fruits is called latinos. A specinum of the latter of find 2 inches long oval, with about of isself smill fitting learn in the above account that the inflorescence is pyramide, inch to the cut supersents it as sessile or pedantit, and about 3 times as long as wide. The Calefornian forms are in policie intermediate between the northern and southerny extremes; a least collected of Monterey and distinguished by its narrowness (met 3/4 inch wide) indicates the prevence of their species so high up northern linit of the species. The caules cent fibrous leaved Yeroras from Mexicos recently introduced from Mexico in European establish ments

by narrower and smoother leaves, some with red others with

Ephedra altissima Hort bot eleapol. 1868 her leaves 5-10 lines long and very often in 3- (as well as their ax Many branches) of mainstration with annual theres. In MISSOURI

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The loves not just -. The crany of the smaller flower is 15, Tube 2, loves 7-8 I lives long and the ex sent first of filament florger than the whole perigon, in the former the stamen, are inserted as little below the base of the look, in the latter at the very base itself. The capsale of the letter if 1/2-1/4 inches long and 7-8 lines with seed 3 lines with with suring brevior pel magis acqualis staming medio tubo inserta! tulio to Zubus Cobis for brevior. 13 Agave Shawii, n. sp.: jubaranlis, poliis perviridibus Egerecto-patulis Int supra bysin I Patatami vix denticulatam paulo contractis ovatis acufis spina valida late excavata accuminatis, margines cornes susce demun incompletes vix solubili aculeis fonfertis maxinis sursum curvatis vel vanie flexis forride, scapo valido bratteis foliareis triangularibus toto imbricato; ramus paniculae horizontalibus seu superioribus ascendentibus aprice glomerulum florum subsessilium compaetan foliaresintrolueratum gerentibus, ovario prixmatico perigonio Vix breviore, staminibus medio tubo adnatis pado exsertis

